

David C. Knight, PhD

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Education

2002 – present

Postdoctoral Fellowship

Functional Imaging Methods Unit
Laboratory of Brain and Cognition
National Institute of Mental Health

2002

Ph.D. in Psychology

University of Wisconsin-Milwaukee

Majors: Neuroscience & Clinical

Dissertation: *Event-Related fMRI of Neural Substrates Mediating Human Delay and Trace Fear Conditioning*

2001 – 2002

Predoctoral Neuropsychology Internship

West Virginia University School of Medicine

Rotations: Neuropsychology & Adult Psychology

1999

M.S. in Psychology

University of Wisconsin-Milwaukee

Thesis: *Functional Neuroanatomy of Conditional Fear*

1994

B.S. in Psychology, Magna Cum Laude

Truman State University, Kirksville, MO

Research Grants & Awards

F31 (MH11722)

Predoctoral National Research Service Award (1/1/98 to 12/31/00)

NIH/NIMH

The objective of this project was to identify the neural substrates in the human brain that subserve aversive emotional states.

R01 (In preparation)

NIH/NIMH

The objective of this project is to identify human brain regions that support the acquisition, expression, and extinction of conditional fear with and without awareness.

Manuscripts

Haut, M., Kuwabara, H., Leach, S., Moran, M., Arias, R., Knight, D. (In Press). The effect of education on age-related functional activation during working memory. *Aging, Neuropsychology, and Cognition*.

Knight, D. C., Smith, C. N., Cheng, D. T., Stein, E. A., & Helmstetter, F. J. (2004). Amygdala and hippocampal activity during acquisition and extinction of human fear conditioning. *Cognitive, Affective, and Behavioral Neuroscience*, 4 (3), 317-325.

Knight, D. C., Cheng, D. T., Smith, C. N., Stein, E. A., & Helmstetter, F. J. (2004). Neural substrates mediating human delay and trace fear conditioning. *Journal of Neuroscience*, 24 (1), 218-228.

Knight, D. C., Nguyen, H. T., & Bandettini, P. A. (2003). Expression of conditional fear with and without awareness. *Proceedings of the National Academy of Sciences*, 100 (25), 15280-15283.

Cheng, D. T., Knight, D. C., Smith, C. N., Stein, E. A., & Helmstetter, F. J. (2003). Functional MRI of human amygdala activity during Pavlovian fear conditioning: Stimulus processing versus response expression. *Behavioral Neuroscience*, 117 (1), 3-10.

Knight, D. C., Smith, C. N., Stein, E. A., & Helmstetter, F. J. (1999). Functional MRI of human Pavlovian fear conditioning: Patterns of activation as a function of learning. *NeuroReport*, 10 (17), 3665-3670.

Cheng, D. T., Knight, D. C., Smith, C. N., Stein, E. A., & Helmstetter, F. J. (Submitted). Human amygdala activity during the expression of fear responses.

Knight, D. C., Nguyen, H. T., & Bandettini, P. A. (In Progress). The role of awareness in delay and trace fear conditioning in humans.

Knight, D. C., Nguyen, H. T., & Bandettini, P. A. (In Progress). Role of the human amygdala in the expression of conditional fear.

Smith, C. N., Knight, D. C., Cheng, D. T., McIntosh, A. R., Chau, W. K., Stein, E. A., & Helmstetter, F. J. (In Progress). Acquisition and reversal of differential fear conditioning in humans using fMRI.

Academic & Professional Awards

NIMH Seymour S. Kety Memorial Fellowship (2004)

Fazio Research Award (2000)

NIMH, Predoctoral Fellowship (1998-2000)

Sigma Xi Grant in Aid of Research (1998)

Phi Kappa Phi Honor Society (1997)

Psi Chi Honor Society (1993)

Association of Applied Psychophysiology and Biofeedback Outstanding Poster Award (1992 & 1996)

Edward D. Blanchard Award (1992, 1993, & 1994)

All American Scholar (1992)

Professional Affiliations

American Psychological Association
Cognitive Neuroscience Society
Organization for Human Brain Mapping
Society for Neuroscience

Research Experience

2002 – present	Postdoctoral Fellow Functional Imaging Methods Unit Laboratory of Brain and Cognition National Institute of Mental Health <i>Supervisor: P.A. Bandettini, PhD</i>
1995 – 2001	Graduate Research University of Wisconsin-Milwaukee Projects: Functional MRI of human Pavlovian fear conditioning. <i>Supervisor: F. Helmstetter, PhD</i>
1990 – 1994	Undergraduate Research Truman State University, Kirksville, Missouri. Projects: Investigation of effects of biofeedback on human psychophysiology. <i>Supervisor: F. Shaffer, PhD</i>

Teaching/Supervision Experience

2002 – present	Supervision of NIMH Predoctoral IRTA National Institute of Mental Health, Bethesda, Maryland.
1999 – 2000	Psychotherapy Supervision Practicum University of Wisconsin-Milwaukee Psychology Clinic, Milwaukee, Wisconsin.
1995 – 1996	Teaching Assistant-Physiological Psychology University of Wisconsin-Milwaukee, Milwaukee, Wisconsin.

Selected Clinical Experience

2002	PhD Clinical Psychology University of Wisconsin-Milwaukee <i>Supervisors: F. Helmstetter, PhD; D. Osmon, PhD</i>
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2001 – 2002

Predoctoral Clinical Neuropsychology Internship (2001-2002)

West Virginia University School of Medicine, Morgantown, West Virginia.

Responsibilities: Assessment, consultation, and psychotherapy with patients with neurologic, psychiatric, and medical problems.

Supervisors: M. Haut, PhD ABPP-cn; M. Parsons, PhD; C. Wilson, PhD

1998 – 2000

Neuropsychology Practicum

Medical College of Wisconsin Neuropsychology Clinic, Milwaukee, Wisconsin.

Responsibilities: Neuropsychological assessment of patients with neurobehavioral disorders.

Supervisors: T. Hammeke, PhD ABPP; M. Parsons, PhD; S. Swanson, PhD ABPP

Selected Colloquia & Symposia presentations

Use of behavioral data in fMRI design and analysis (February 2004). National Institute of Mental Health, Bethesda, Maryland.

Event-Related fMRI of Single Trial Learning during Pavlovian Fear Conditioning (August 2001). West Virginia University, Morgantown, West Virginia.

Functional Neuroanatomy of Pavlovian Discrimination and Reversal Conditioning (October 1999). Medical College of Wisconsin, Milwaukee, Wisconsin.

Acquisition and Extinction of Pavlovian Conditioned Fear: An fMRI study (July 1998). Medical College of Wisconsin, Milwaukee, Wisconsin.

Functional MRI of Pavlovian Fear Conditioning (March 1997). Medical College of Wisconsin, Milwaukee, Wisconsin.

Abstracts

Cheng, D. T., Knight, D. C., Smith, C. N., Stein, E. A., & Helmstetter, F. J. (2004). Autonomic fear responses and human amygdala activity: An event-related fMRI Study. [The Pavlovian Society](#).

Nguyen, H. T., Knight, D. C., Bandettini, P. A. (2004). Role of awareness in delay and trace fear conditioning. [Society for Neuroscience Abstracts](#).

Knight, D. C., Nguyen, H. T., Bandettini, P. A. (2004). Amygdala activity associated with conditioned skin conductance responses during Pavlovian fear conditioning. [Human Brain Mapping Abstracts](#).

Knight, D. C., Nguyen, H. T., Bandettini, P. A. (2004). Expression of conditional fear with and without awareness. [Cognitive Neuroscience Society](#).

Knight, D. C. & Bandettini, P. A. (2003). Functional MRI of conditioned, unconditioned, orienting, and non-specific skin conductance responses during Pavlovian fear conditioning. [Human Brain Mapping Abstracts](#).

- Cheng, D. T., Smith, C. N., Thomas, T. L., Richards, J. A., Knight, D. C., Rao, S. M., & Helmstetter, F. J. (2003). Neural correlates of processing categorical stimuli during human Pavlovian fear conditioning: Implicit versus explicit Memory processing. Human Brain Mapping Abstracts.
- Haut, M. W., Kuwabara, H., Moran, M., Leach, S., Arias, R., Knight, D. C., & Parsons, M. (2003). Aging, cognitive reserve, and working memory: A positron emission tomography study. Human Brain Mapping Abstracts.
- Richards, J. A., Smith, C. N., Cheng, D. T., Thomas, T. L., Knight, D. C., Rao, S. M., & Helmstetter, F. J. (2003). Stimulus-evoked changes in brain activity during human fear conditioning: A multivariate analysis of early vs. late learning. Human Brain Mapping Abstracts.
- Cheng, D. T., Knight, D. C., Smith, C. N., Stein, E. A., & Helmstetter, F. J. (2002). Neural substrates for autonomic response expression during Pavlovian fear conditioning. Human Brain Mapping Abstracts.
- Smith, C. N., Knight, D. C., Cheng, D. T., Stein, E. A., & Helmstetter, F. J. (2002). Brain activity during differential acquisition and reversal of fear conditioning. Human Brain Mapping Abstracts.
- Cheng, D. T., Smith, C. N., Knight, D. C., & Helmstetter, F. J. (2002). Dissociating declarative and non-declarative memory performance during human fear conditioning to categorical stimuli. Midwestern Psychological Association.
- Smith, C. N., Knight, D. C., Cheng, D. T., & Helmstetter, F. J. (2002). Concurrent development of explicit and implicit learning in differential delay and trace fear conditioning in humans. Midwestern Psychological Association.
- Cheng, D. T., Knight, D. C., Smith, C. N., Stein, E. A., & Helmstetter, F. J. (2001). Event-related fMRI of neural substrates important for learned responses during Pavlovian fear conditioning. Society for Neuroscience Abstracts, 27, Program No. 75.3.
- Knight, D., Cheng, D., Smith, C., Stein, E., & Helmstetter, F. (2001). Functional MRI of neural substrates of awareness during human fear conditioning. Journal of the International Neuropsychology Society, 7 (2), 251-252.
- Cheng, D. T., Knight, D. C., Smith, C. N., Stein, E. A., & Helmstetter, F. J. (2000). Neural substrates of explicit and implicit memory performance during Pavlovian fear conditioning. Society for Neuroscience Abstracts, 26 (1), 709.
- Knight, D. C., Cheng, D. T., Smith, C. N., Stein, E. A., & Helmstetter, F. J. (2000). Event-related fMRI of neural substrates mediating human delay and trace fear conditioning. Society for Neuroscience Abstracts, 26 (2), 1852.
- Smith, C. N., Knight, D. C., Cheng, D. T., McIntosh, A. R., & Helmstetter, F. J. (2000). Network analysis of human differential fear conditioning. Society for Neuroscience Abstracts, 26 (2), 1852.
- Knight, D. C., Smith, C. N., Cheng, D. T., Stein, E. A., & Helmstetter, F. J. (1999). Neural substrates of discrimination and reversal learning in human fear conditioning as revealed by fMRI. Society for Neuroscience Abstracts, 25 (2), 2067.

- Cheng, D. T., Knight, D. C., Smith, C. N., Stein, E. A., & Helmstetter, F. J. (1998). Response versus stimulus-based analysis of functional brain images in human fear conditioning. *Society for Neuroscience Abstracts*, 24 (2), 1913.
- Knight, D., Smith, C., Cheng, D., Stein, E., & Helmstetter, F. (1998). fMRI of brain regions involved in acquisition versus performance of human fear conditioning. *Society for Neuroscience Abstracts*, 24 (2), 1523.
- Smith, C., Knight, D., Cheng, D., Stein, E., & Helmstetter, F. (1998). Functional neuroimaging of human differential fear conditioning. *Society for Neuroscience Abstracts*, 24 (2), 1913.
- Knight, D., Smith, C., Cheng, D., Stein, E., & Helmstetter, F. (1998). Functional imaging of human conditional fear. *NeuroImage*, 7 (4), S53.
- Knight, D., Smith, C., Stein, E., & Helmstetter, F. (1997). Functional MRI of fear conditioning in humans. *Society for Neuroscience Abstracts*, 23 (1), 209.
- Knight, D., Stein, E., & Helmstetter, F. (1997). Pavlovian fear conditioning in humans: an fMRI study. *Human Brain Mapping Abstracts*.
- Knight, D., Helmstetter, F., & Stein, E. (1996). Functional imaging of brain regions involved in Pavlovian Fear Conditioning in humans. *Society for Neuroscience Abstracts*, 22 (3), 1867.
- Shaffer, S., Knight, D., Lubbe, C., Wehmeyer, T., Stratmann, J., Simmons, J., Demetriou, D., Havlac, L., Dithardt, J., Troyer, J., Sabo, A., Sauder, M., Rever, C., Seemater, S., Zimmerman, T., Jansen, C., Greve, E., Guntli, J., Hall, H., Stolzer, G., Revel, A., & Roth, K. (1994). Comparison of diaphragmatic training methods. *Biofeedback and Self-Regulation*, 19 (3), 270-271.
- Shaffer, S., Knight, D., Lubbe, C., Wehmeyer, T., Stratmann, J., Simmons, J., Demetriou, D., Havlac, L., Dithardt, J., Troyer, J., Sabo, A., Sauder, M., Rever, C., Seemater, S., Zimmerman, T., Jansen, C., Greve, E., Guntli, J., Hall, H., Stolzer, G., Revel, A., & Roth, K. (1994). Diaphragmatic training reduces the disruptive effects of common activities on respiration. *Biofeedback and Self-Regulation*, 19 (3), 271-272.
- Shaffer, S., Knight, D., Lubbe, C., Wehmeyer, T., Stratmann, J., Simmons, J., Demetriou, D., Havlac, L., Dithardt, J., Troyer, J., Sabo, A., Sauder, M., Rever, C., Seemater, S., Zimmerman, T., Jansen, C., Greve, E., Guntli, J., Hall, H., Stolzer, G., Revel, A., & Roth, K. (1994). The effects of preferred music and volume on undergraduate psychophysiological responses. *Biofeedback and Self-Regulation*, 19 (3), 272-273.
- Shaffer, S., Knight, D., Lubbe, C., Wehmeyer, T., Stratmann, J., Simmons, J., Demetriou, D., Havlac, L., Dithardt, J., Troyer, J., Sabo, A., Sauder, M., Rever, C., Seemater, S., Zimmerman, T., Jansen, C., Greve, E., Guntli, J., Hall, H., Stolzer, G., Revel, A., & Roth, K. (1994). Validation of two diaphragmatic breathing protocols with healthy undergraduates. *Biofeedback and Self-Regulation*, 19 (3), 271.
- Shaffer, S., Knight, D., Sponsel, M., Belcher, J., Stratmann, J., Sauder, M., Simmons, J., Zimmerman, T., Wehmeyer, T., Seemater, S., Dithardt, J., Jansen, C., Wallen, C., Stoff, G., & Peper, E. (1993). Vigilance reduces inhalation volume: Nintendo play may reinforce dysfunctional breathing. *Biofeedback and Self-Regulation*, 18 (3), 198.

Shaffer, S., Sponsel, M., Knight, D., Belcher, J., Stratmann, J., Sauder, M., Simmons, J., Zimmerman, T., Wehmeyer, T., Jansen, C., Seemater, S., Dithardt, J., Wallen, C., Stoff, G., & Peper, E. (1993). Attention to the abdomen promotes diaphragmatic breathing. Biofeedback and Self-Regulation, 18 (3), 197.

Shaffer, S., Sponsel, M., Knight, D., Belcher, J., Stratmann, J., Sauder, M., Zimmerman, T., Wehmeyer, T., Simmons, J., Dithardt, J., Seemater, S., Jansen, C., Wallen, C., & Peper, E. (1993). A double-blind test of brain-wave synchronizer effectiveness in inducing relaxation or alertness. . Biofeedback and Self-Regulation, 18 (3), 196.

Shaffer, S., Sponsel, M., Hollensbe, J., Belcher, J., Knight, D., Sauder, M., & Lewis, M. (1992). Tight shoulders and designer jeans prevent diaphragmatic breathing. Biofeedback and Self-Regulation, 17 (4), 309-310.

Shaffer, S., Sponsel, M., Johnson, D., Schenck, C., Wehmeyer, T., Belcher, J., Knight, D., & Lewis, M. (1992). The sit-up effect: Acute sitting angles produce thoracic breathing. Biofeedback and Self-Regulation, 17 (4), 344.